

IN THE SPECIFICATION:

Please replace paragraphs [0005], [0006], [0023], [0024], [0026], [0027], [0029], [0031], [0033], [0035], [0036], [0038], and [0041] with the following amended paragraphs:

[0005] Fig. 1 illustrates an exemplary processing chamber 100 that provides for plasma confinement. The processing chamber 100 includes a chamber body 102 having a vertically movable substrate support member 104 disposed therein. The support member 104 generally includes one or more electrodes (not shown) for biasing the substrate. The chamber body 102 generally includes a lid 106, a bottom 108 and sidewalls 110. Coils 112 are disposed proximate the lid 106 and are coupled to a power source 114. An annular shield 116 is coupled to the sidewalls 110 or lid 106 and circumscribes the support member 104. A cover ring 118 is suspended from a J-section 120 of the shield 116 when the support member 104 is in a lowered position.

[0006] As the support member 104 is elevated to a processing position as depicted in Fig. 1, the perimeter of the support member 104 contacts the cover ring 118, lifting the cover ring 118 off the shield 116. Since the cover ring 118 and J-section 120 of the shield 116 remain interleaved creating a labyrinth or gap, plasma formed in a process region 122 defined between the support member 104 and the lid 106 does not migrate to a region 124 below the support member 104 where ions leaving the plasma may etch chamber components proximate thereto.

[0023] The chamber body 202 includes sidewalls 216, a bottom 218 and a lid 220. An access port 222 is generally disposed in the sidewalls 216 to allow entry and egress of the substrate 224 from the chamber 200. The port 222 is selectively sealed by a slit valve 226 to isolate the processing region 206 during processing. A transfer robot (not shown) is utilized to pass the substrate through the port 222 to place and retrieve the substrate 224 from the substrate support member 204. One slit valve that may be used to advantage is described in commonly assigned United States Patent No. 5,226,632,

issued July 13, 1993 to Tepman, et al., which is hereby incorporated by reference in its entirety.

[0024] In one embodiment, the lid 220 is a quartz dome disposed on the sidewalls 216 above the processing region 206. The inductive coil 210 is generally disposed around the lid 220 and connected through a matching circuit 228 to the RF power source 208. The RF power source 208 inductively couples power to a plasma formed from a working gas supplied to the processing region 206 during processing. The coil 210 may be vertically stacked about the lid 220 as shown in Fig. 2, disposed equidistant from the dome or ~~arraigned~~ arranged in other configurations.

[0026] An annular upper shield 240 is generally disposed within the chamber body 202 and circumscribes the processing region 206. The upper shield 240 is generally coupled to the lid 220 or sidewalls 216. The upper shield 240 ~~maybe~~ may be replaceable as part of a "process kit" that is replaced after a number of substrates have been processed. The upper shield 240 is generally comprised or coated with a conductive material. In one embodiment, the upper shield 240 is fabricated from aluminum and is electrically coupled to the sidewalls 216 at a first end 294 and extends inward to a cylindrical portion 296 and terminates at a second end 298.

[0027] A conductive flexible strap 242 is electrically couples the upper shield 240 and the substrate support member 204. The conductive strap 242 is generally comprised of a conductive and durable material. In one embodiment, the strap 242 is comprised of beryllium-copper. Other flexible, conductive materials may also be utilized. The strap 242 is configured to allow the substrate support member 204 to move vertically within the chamber 200.

[0029] The insert 246 generally includes a top surface 260 that extends slightly higher than the upper surface 254 of the body 244 and supports the substrate 224 thereon. Optionally, the top surface 260 and/or the upper surface 254 may be coated or covered with a dielectric material 286. The insert 246 is connected by a conductor 274 disposed

through the shaft 272 to the power source 212 that electrically biases the insert 246 during processing. The top surface 260 of the insert 246 generally extends above the upper surface 254 of the body 244 such that the peripheral portion of the substrate 224 extends above the upper surface 254 and forms a gap between the bottom of the substrate 224 and the upper surface 254. Optionally, the substrate support member 204 may include[[s]] a temperature control device such as a heater or fluid conduct (not shown) to regulate the temperature of the substrate 224 during processing.

[0031] The lower shield 248 includes a center portion 262 that extends radially to a lip 264. The lip 264 is orientated upwards at an angle from center portion 262, projecting towards a plane 270 defined by the first upper surface 254 of the body 244. In one embodiment, the lip 264 is substantially perpendicular (*i.e.*, within 15 degrees) to the center portion 262. In the embodiment depicted in Fig. 2, the lip 264 is perpendicular to the center portion 262 and parallel to the upper shield 240 and sidewalls 216. In the raised position, the lip 264 is interleaved outward of second end 298 and cylindrical portion 296 of the upper shield 240 to form a labyrinth gap 292 that prevents the plasma from leaving the processing region 206.

[0033] In the embodiment depicted in Fig. 2, the lower shield 248 is disposed between the lower surface 256 of the body 244 and the clamp plate 250 which is typically screwed or otherwise fastened to the body 244. The clamp plate 250 is coupled to the shaft 272 which allows a lift mechanism 276 positioned outside the chamber 200 to move the substrate support member 204 between the upper, processing position depicted in Fig. 2 and a lower position that facilitates substrate transfer as shown in Fig. 6. The clamp plate 250 is generally comprised of a RF conductive material such as aluminum and is typically coupled to the shaft 242 272 by welding, although other fastening methods may be utilized.

[0035] The lower shield 248 is electrically grounded through the substrate support member (pedestal) 204 and shaft 272. To promote good electrical contact between the lower shield 248 and the shaft 272, a conductive member 282 may be disposed

therebetween. The conductive member 282 may be a conductive grease, paste, adhesive, foil or other material that promotes electrical conduction between the lower shield 248 and clamp plate 250 which is electrically coupled to the shaft 272. Alternatively, the conductive member 282 may be disposed between the lower shield 248 and the body 244. In the embodiment depicted in Fig. 2, the conductive member 282 comprises a spring that is formed from a conductive material such as ~~beryllium copper~~ beryllium-copper that is partially disposed in a groove 284 formed in the lower shield 248. Alternatively, the groove 284 retaining the conductive member 282 may be disposed in the clamp plate 250 or disposed in both the clamp plate 250 and lower shield 248.

[0036] Fig. 3 is a perspective view of one embodiment of the lower shield 248 depicting an upper surface 310. Generally, the lower shield 248 has a center aperture 306 that centers the lower shield 248 with the clamp plate 250. A plurality of lift pin holes 302 are disposed through the lower shield 248 which allow lift pins 290 ~~[[()]]~~(shown in Fig. 2) to pass therethrough. A plurality of mounting holes 304 are generally disposed through the lower shield 248 to allow the fasteners 278 to interface with the body 244.

[0038] As seen in Fig. 5, the mounting surface 404 provides a flat interface for mounting the strap 244 242 to the lower shield 248. The flat interface provides good electrical conductivity and maintains the strap 244 242 in a flat configuration that promotes flexibility. Additionally, one or more locating elements such as a dowel pin 502 may be disposed between the strap 244 242 and lower shield 248 to facilitate attaching the strap 244 242 to the lower shield 248.

[0041] The conductive, flexible strap 242, which electrically couples the upper shield ~~254~~ 240 and the lower shield 248, provides a short RF return path for the plasma disposed in the processing region 206 which electrically contacts the upper shield ~~254~~ 240. Plasma contacting the upper shield ~~254~~ 240, is grounded through a path comprising the strap 242, lower shield 248, conductive member 282, clamp ~~blade~~ plate

250 and shaft 272. A short RF return advantageously minimizes voltage accumulation on the chamber walls and ~~the~~ reduces the voltage drop of the return path over most conventional processing chambers that rely on the walls and bellows to provide the return path from the plasma to ground ~~shaft 272~~.